Gold Hill Bridge
Spanning Rogue River on Oregon Route 234
Gold Hill
Jackson County
Oregon

HAER OR-37

PHOTOGRAPHS
WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
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HISTORIC AMERICAN ENGINEERING RECORD

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Jet Lowe, Photographer, Summer 1990

OR-37-1 Perspective view from northwest

OR-37-2 Perspective view from northwest

OR-37-3 Elevation from south

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HISTORIC AMERICAN ENGINEERING RECORD

GOLD HILL BRIDGE
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Location:	Spanning Rogue River on Oregon Route 234, at the south end of Gold Hill, Jackson County, Oregon UTM: Gold Hill, Oregon Quad. 10/492550/4697400
Date of Construction:	1926-27
Structural Type:	Reinforce-concrete barrel arch
Engineer:	Conde B. McCullough, Oregon State Highway Department
Builder:	O.N. Pierce Company, Portland, Oregon
Owner:	Oregon Department of Transportation
Use:	Vehicular and pedestrian bridge
Significance:	The Gold Hill Bridge spanning Rogue River is the first and only example of a reinforced-concrete open-spandrel barrel deck arch bridge in the state of Oregon. It is quite atypical of the design that C.B. McCullough preferred in reinforced-concrete arch spans. Virtually all of his deck-arch structures employ the open-spandrel ribbed style of construction.
Project Information:	Documentation of the Gold Hill Bridge is part of the Oregon Historic Bridge Recording Project, conducted during the summer of 1990 under the co-sponsorship of HABS/HAER and the Oregon Department of Transportation. Researched and written by Robert W. Hadlow, HAER Historian, 1990. Edited and transmitted by Lola Bennett, HAEr Historian, 1992.
Related Documentation:	For more information on Conde B. McCullough, see HAER OR-54.

HISTORY

The current bridge at Gold Hill is the second span across Rogue River at that location. A ferry operated there, beginning in the 1850s. By the 1870s, local promoter Thomas Chavner constructed a 112-foot pony truss span with frame trestle approaches. It carried traffic as a toll bridge until the late 1880s when Chavner sold the structure to Jackson County. He had succeeded in fierce competition with residents of nearby Rock Point in persuading the Oregon & California Railroad to choose his town over nearby Rock Point for the site for a permanent station in the region.[1]

State Bridge Engineer Conde B. McCullough reported in 1922 that the old pony truss span's stringers were badly decayed. Two years later, the deck's 4-inch planking was beyond repair and the structure could carry traffic for only another six to eight months at most. The Oregon State Highway Department drafted plans for a new bridge at Gold Hill in early 1925. It proposed to the Oregon Public Service Commission (OPSC) that the new structure span the Rogue River west of an existing turn-of-the-century railroad bridge on the Southern Pacific's (previously the Oregon & California's) main line through the valley. The realignment of the highway would eliminate one grade crossing on the north side of the river and one under grade crossing on the south side. By late 1925 the OPSC approved the new location and the Oregon State Highway Commission (OSHC) prepared to call for bid for a new span. In the meantime, though, businessmen from Medford, the Jackson County seat, protested the OSHC's plans for a replacement span as a waste of taxpayers' money. They proposed that the state save $40,000 by not constructing a new bridge and instead pave an existing roadway west of Rock Point and Gold Hill to bear the brunt of traffic and bypass, altogether, the two towns on the other side of the river.[2]

The OSHC awarded a contract to the O.N. Pierce Company of Portland, on August 26, 1926, for an open-spandrel barrel deck arch and approach spans. The estimated cost was $60,000. Work commenced on September 4, 1926.[3]

DESIGN AND DESCRIPTION

The Gold Hill Bridge is the only reinforced-concrete barrel arch span in the state of Oregon. Bridge engineer Conde B. McCullough preferred reinforced-concrete open-spandrel ribbed deck arch and through arch spans. He chose the barrel arch form at Gold hill because it gave the structure greater lateral stiffness. He feared that a ribbed arch might not withstand battering from 20-foot variations in the level of the Rogue River at Gold Hill.[4]

The structure, reading from the north, consists of three 50-foot reinforced-concrete deck girder spans, one 143-foot reinforced-concrete open-spandrel barrel arch, and three 50-foot reinforced-concrete deck girder spans. Clearance, curb-to-curb, is 20'. Width, out-to-out, was 23'-4". In 1948 the OSHD attached a 3'-6" fir walkway to the west elevation for pedestrian traffic. Clearance from the crown of the barrel arch to the springline is 40'-3". Approach bents and main arch piers are attached directly to solid rock. Designs called for a wing wall abutment at the south end of the south approach to control erosion.

Balustrades consist of beveled 1'-6" wide railings and segmental panels. On the east and west elevations a course of dentils and elbow brackets are below the balustrades. Vertical surfaces appear bush-hammered or pebble-dashed. In reality, they are not. McCullough used a chemical, "Contex," that crews applied to the inside surfaces of formwork prior to pouring the concrete. The Contex retarded curing of the concrete within 1/16" to ¼" from the surface. After crews removed the forms they used stiff wire brushes to wisk away the outer, soft layer of concrete to reveal the aggregate below.[5]

Construction finished on June 10, 1927. Final costs totaled $55,520.12. Broken down, it reveals that the state expended $1,944.43; Jackson County, $20,706.01; the Southern Pacific Railroad, $10,500; and the Federal Aid Road fund, $22,369.68.[6]

REPAIR AND MAINTENANCE

Through the early 1940s, the Gold Hill Bridge needed little other that routine maintenance. Crews periodically cleaned road grime from handrails, filled expansion joints with asphalt and sawdust, and cleared bush and weed from around the structure. By 1940, though, local citizens complained that increased vehicular traffic in the area had made it treacherous for pedestrians to cross the Rogue River along the 20-foot wide deck of the Gold Hill bridge.[7]

McCullough had designed the Gold Hill bridge without sidewalks because he believed that there would be only minimal pedestrian traffic over it. In addition, Jackson County could not afford the added expense. Highway department officials mulled over various designs for a sidewalk in the early 1940s. State Bridge Engineer, G.S. Paxson expressed concern over expending a large amount of money on the bridge and another at Rock Point because he believed that in a short time a realignment of the Pacific Highway would bypass both structures.[8]

The OSHC approved plans for a 3-foot sidewalk in June 1942. It would be attached to the west elevation of the reinforced-concrete structure by metal brackets. Nevertheless, the exigencies of a wartime economy during the mid-1940s postponed any consideration of construction. By early 1946, Gold Hill residents again expressed concern about the potential for accidents between pedestrians and motor vehicles on the narrow bridge. The OSHD began building a 3'-6" timber sidewalk for the span in late 1947. Post-World-War-II inflation ballooned estimated costs of construction from $3,029 in 1947, to $5,725.84 by the time the project was complete in April 1948. After years of waiting, the citizens of Gold Hill could walk safely across their bridge.[9]

The Gold Hill Bridge received periodic maintenance after the war. The structure today, aside from its narrow curb-to-curb width, is very serviceable. Some maintenance specialists in the 1970s voiced concern about the load capacity of the timber walkway. They worried that it might not safely carry horses and their riders across the span.[10]

The Oregon Department of Transportation, the successor to the Highway Department, studied the feasibility of widening both the Gold Hill Bridge and the Rock Point Arch, in 1978. Yet, costs estimated at $420,000 for the Gold Hill Bridge, prevented ODOT from including such a project in its six-year planning documents.

ENDNOTES

1. "Fact Sheet Eight: Rock Point Bridge" (Jacksonville: Southern Oregon Historical Society, n.d.), p.1; Attachment to C.B. McCullough, Letter to Merle Rosecrans, 10 October 1922, RG-H4, 76A-90/3, Folder 15-4, Oregon State Archives.

2. C.B. McCullough, Letter to R.A. Klein, State Highway Engineer, 28 July 1924, "Gold Hill Bridge (No. 576), ODOT Bridge Section Maintenance Files; McCullough, Letter to S. Sumpter Smith, 18 April 1925, RG-H4, 76A-90/3, Folder 15-4, Oregon State Archives; Telegram, Joseph Dunne, Oregon State Motor Association, to OSHC, 27 May 1925.

3. Oregon State Highway Commission, Seventh Biennial Report, 1925-26, p.314.

4. Oregon State Highway Commission, Eighth Biennial Report, 1927-28, p.319.

5. McCullough to O.N. Pierce, Contractor, [1926], "Gold Hill Bridge (No. 576)," Microfilmed Records, ODOT Bridge Section.

6. Oregon State Highway Commission, Eighth Biennial Report, 1927-28, p.319.

7. "Bridge Maintenance, Repair, and Renewals, 1927-1940: Gold Hill Bridge (No. 576)," ODOT Bridge Section Maintenance Files.

8. G.S. Paxson, State Bridge Engineer, to McCullough, 16 July 1940 "Gold Hill Bridge (No. 576)," ODOT Bridge Section Maintenance Files.

9. Kenneth Palmer, Gold Hill City Recorder, to OHSC, 5 February 1946; Paxson to W.W. Stiffler, Assistant Maintenance Engineer, 19 February 1947, "Gold Hill Bridge (No. 576)," ODOT Bridge Section Maintenance Files.

10. "Bridge Inspection and Maintenance Report," Gold Hill Bridge (No. 576), ODOT Bridge Section Maintenance Files.